



**INTERNATIONAL BORDER
MANAGEMENT SYSTEMS**

Cooperative Monitoring

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.



What is Cooperative Monitoring?

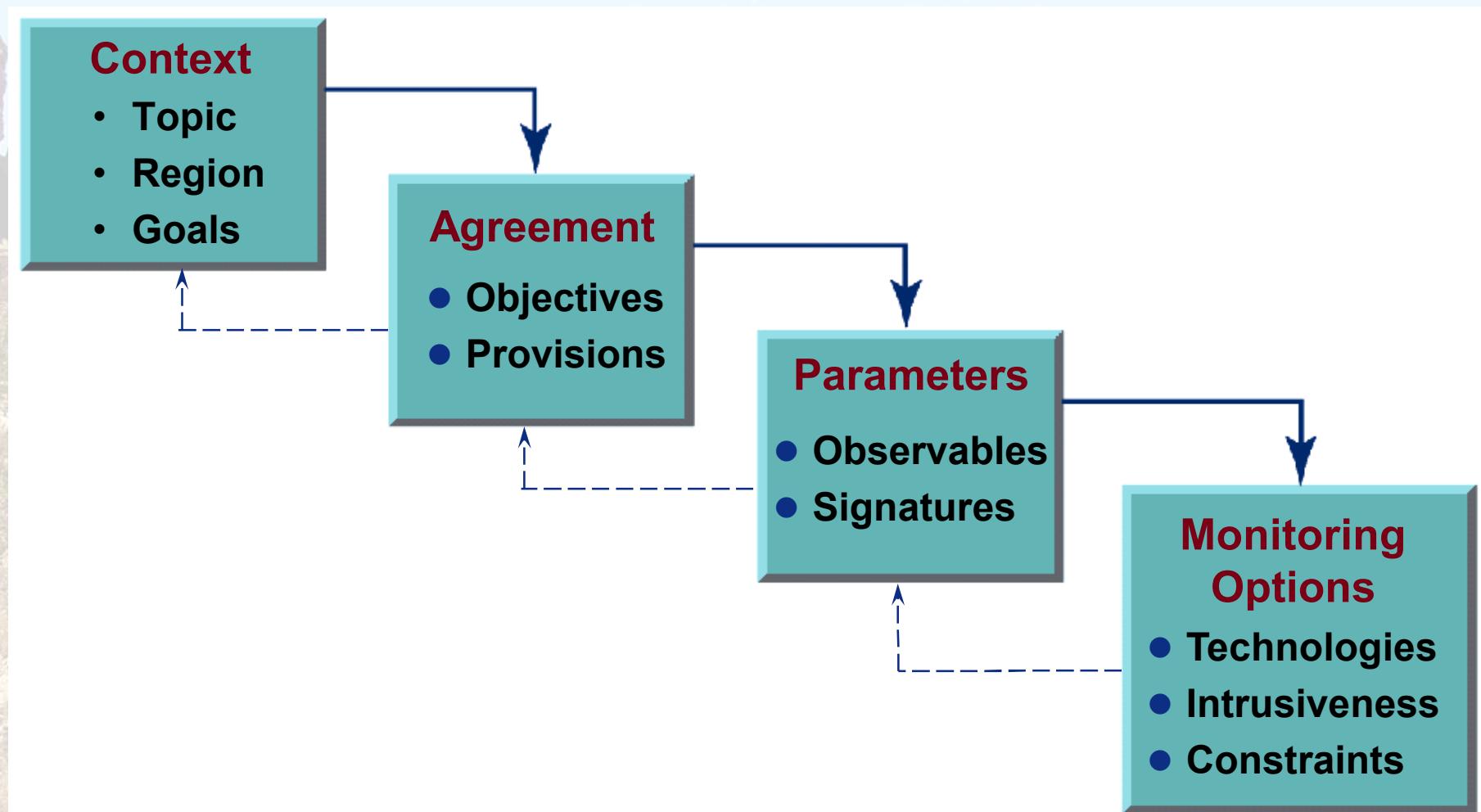
The process of obtaining and sharing agreed information among parties

- Uses sharable technologies and data information gathering methods
 - treaty verification
 - confidence building
- assures equal access to results
- stipulates procedures for dealing with anomalies



Cooperative monitoring complements, but does not replace, national capabilities.

Framework



Border Applications

- **Common data bases for information management**
- **Common procedures**
- **Detection and assessment systems**
- **Test and evaluation data**
- **Training exchanges**
- **Border monitoring**
- **Drug and smuggling interdiction**
- **Refugee management**
- **Joint exercises**





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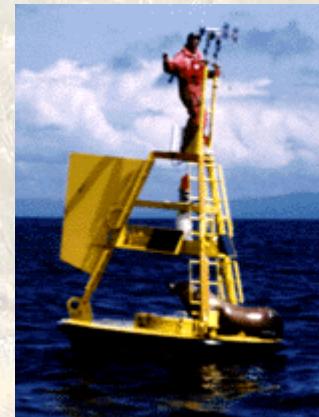
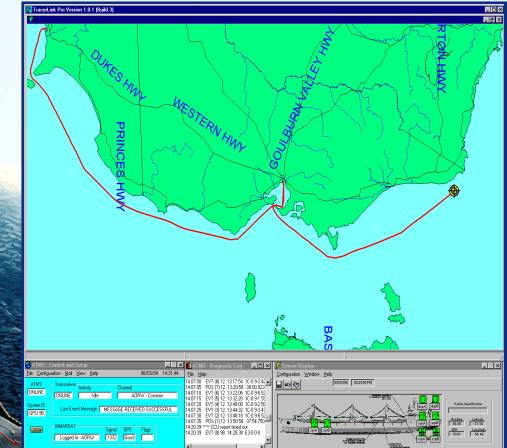
Maritime Applications

- Objectives

- Useful to avoid accidental border crossings
- Useful for search and rescue
- May avoid military confrontation
- Scientific cooperation potential

- Technical Options

- Global positioning system ship tracking
- Moored buoys for data collection or boundary demarcation



Aerial & Satellite Applications

- Aerial
 - Regional open skies regime
 - Specified sensors and resolutions
 - Joint missions
 - Defined overflight regions
- Satellite Based
 - Share imagery
 - Joint analysis of imagery



Identification of aircraft at varying resolutions



Indian IRS 1-C Satellite Image

Other Applications

Natural Resources

- Water
- Deforestation
- Desertification
- Wildlife migration



Pollution

- Air
- Lakes
- Rivers
- Oceans



Emergency Planning and Response

- Earthquakes
- Cyclones

- Oil spills
- Volcanoes



Energy

- Fossil
- Hydroelectric

- Nuclear
- Renewables

Cooperative Monitoring

- Bilateral and regional agreements are possible
- Can supplement existing agreements and efforts
- Incremental approach is possible
- Initial role exists for establishing training on cooperative monitoring concepts and technologies

Discussion

- **In your opinion, how can cooperative monitoring approaches assist in border management for your country?**
- **Are there potential obstacles to such an approach?**
- **What advantages can you imagine to a more regional approach?**